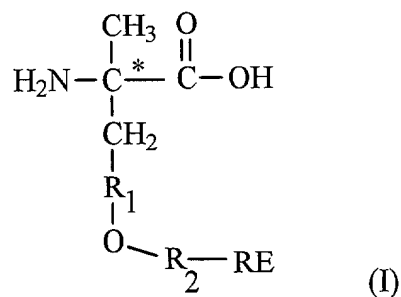


We claim:

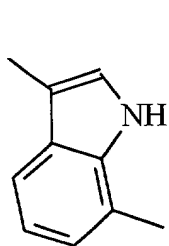
1. A compound of formula (I), or a pharmaceutically acceptable salt thereof:



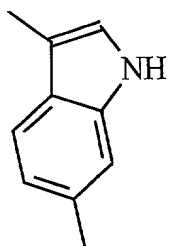
wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

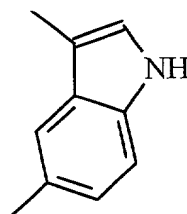
R₁ is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



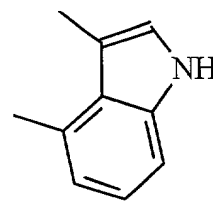
(a),



(b),



(c),



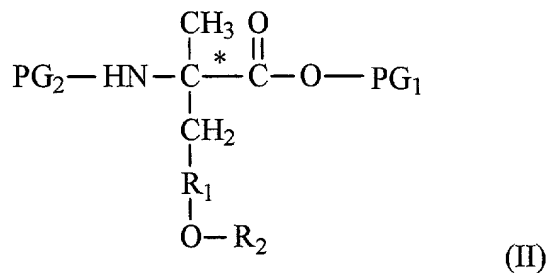
(d);

R₂ is C₁-C₇ alkyl; and

RE is selected from the group consisting of ⁷⁵Br, ¹²⁴I and ¹⁸F.

2. The compound of claim 1, wherein R₁ is a single bond.
3. The compound of claim 1, wherein R₁ is phenyl.
4. The compound of claim 3, wherein the -O-R₂-RE group is *para* the CH₂ group on the phenyl.

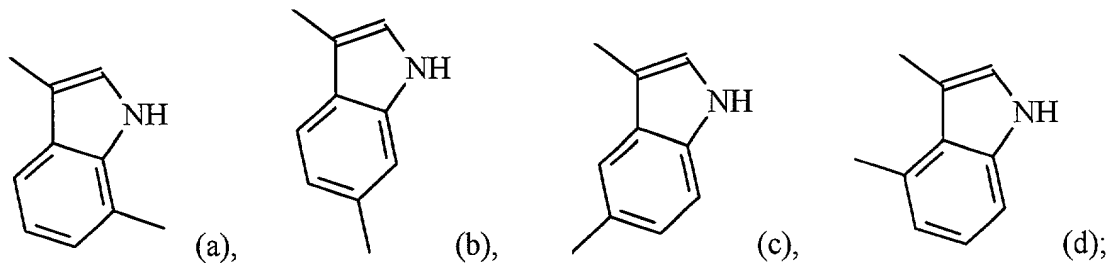
5. The compound of claim 3, wherein the -O-R₂-RE group is *meta* the CH₂ group on the phenyl.
6. The compound of claim 3, wherein the -O-R₂-RE group is *ortho* the CH₂ group on the phenyl.
7. The compound of claim 1, wherein R₁ is a group of formula (a), (b), (c) or (d).
8. The compound of claim 1, wherein R₂ is C₂-C₆ alkyl.
9. The compound of claim 1, wherein R₂ is C₂-C₅ alkyl.
10. The compound of claim 1, wherein the compound is present in the L-form.
11. The compound of claim 1, wherein the compound is present in the D-form.
12. The compound of claim 1, wherein the compound is present as a racemic mixture.
13. The compound of claim 1, wherein the compound is 3-[¹⁸F]fluoro(C₂-C₆)-α-methyl tyrosine.
14. The compound of claim 13, wherein the compound is 3-[¹⁸F]fluoropropyl-α-methyl tyrosine.
15. A compound of formula (II):



wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

R₁ is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



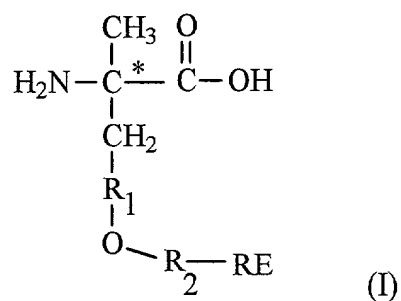
R₂ is H or a group -R₃-O-R₄, wherein R₃ is C₁-C₇ alkyl and R₄ is H or a leaving group;

PG₁ is a carboxyl protecting group; and

PG₂ is an amino protecting group.

16. The compound of claim 15, wherein PG₂ is a Boc group.
17. The compound of claim 15, wherein PG₁ is C₁-C₃ alkyl.
18. The compound of claim 15, wherein R₁ is a single bond.
19. The compound of claim 15, wherein R₁ is phenyl.
20. The compound of claim 19, wherein the -O-R₂ group is *para* the CH₂ group on the phenyl.
21. The compound of claim 19, wherein the -O-R₂ group is *meta* the CH₂ group on the phenyl.

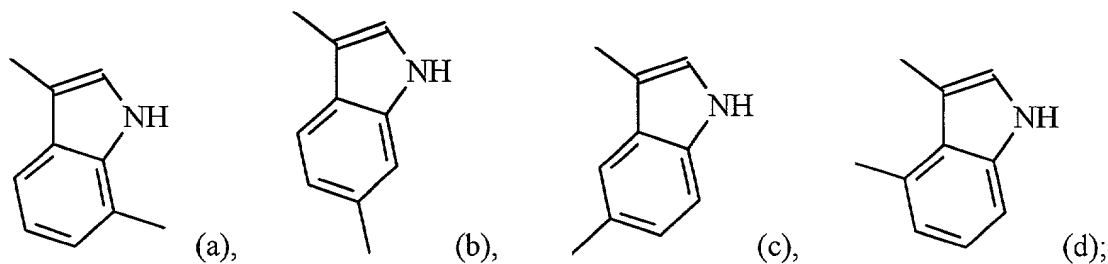
22. The compound of claim 19, wherein the -O-R₂ group is *ortho* the CH₂ group on the phenyl.
23. The compound of claim 15, wherein R₁ is a group of formula (a), (b), (c) or (d).
24. The compound of claim 15, wherein R₂ is H.
25. The compound of claim 15, wherein R₂ is a group -R₃-O-R₄.
26. The compound of claim 25, wherein R₃ is C₂-C₆ alkyl.
27. The compound of claim 25, wherein R₃ is C₂-C₅ alkyl.
28. The compound of claim 25, wherein R₄ is H.
29. The compound of claim 25, wherein R₄ is a sulfonyl group.
30. The compound of claim 29, wherein R₄ is selected from the group consisting of tosyl, trifyl, mesyl, trimsyl, tripsyl, brosyl and nosyl.
31. The compound of claim 30, wherein R₄ is selected from the group consisting of tosyl, trifyl and mesyl.
32. The compound of claim 31, wherein R₄ is tosyl.
33. The compound of claim 32, wherein R₃ is propyl.
34. A method of synthesizing a compound of formula (I):



wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

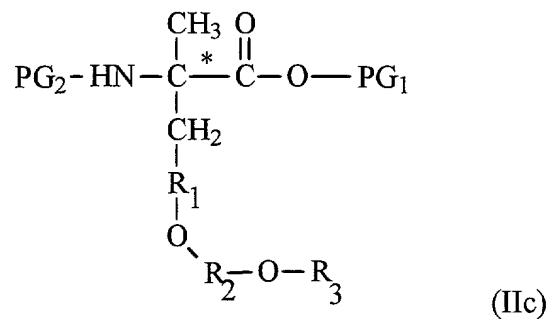
R₁ is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



R₂ is C₁-C₇ alkyl, and

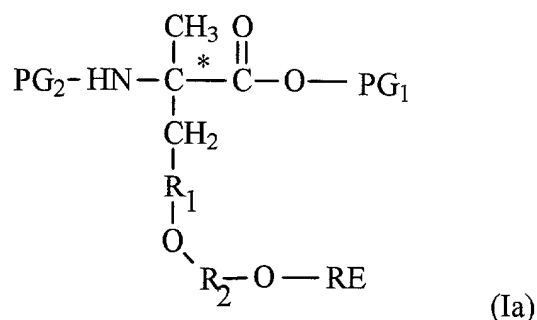
RE is selected from the group consisting of ⁷⁵Br, ¹²⁴I and ¹⁸F,
the process comprising the following steps:

(1) reacting a compound of formula (IIc):



wherein R₁ and R₂ are the same as above, R₃ is a leaving group, PG₁ is a carboxyl protecting group and PG₂ is an amino protecting group,

with a salt of RE, wherein RE is the same as above, to produce a compound of formula (Ia):



wherein R₁, R₂, RE, PG₁ and PG₂ are the same as above; and

(2) removing the protecting groups.

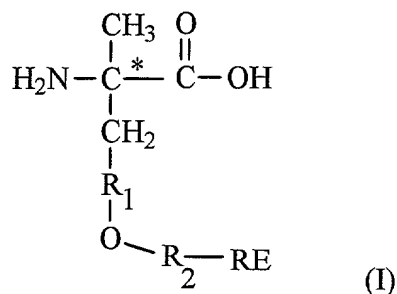
35. The method of claim 34, wherein R₃ is selected from the group consisting of tosyl, trifyl, mesyl, trimsyl, tripsyl, brosyl and nosyl.

36. The method of claim 35, wherein R₃ is selected from the group consisting of tosyl, trifyl and mesyl.

37. The method of claim 36, wherein R₃ is tosyl.

38. A method of imaging a tumor in a patient using positron emission tomography (PET) or single photon emission computed tomography (SPECT) imaging, the method comprising

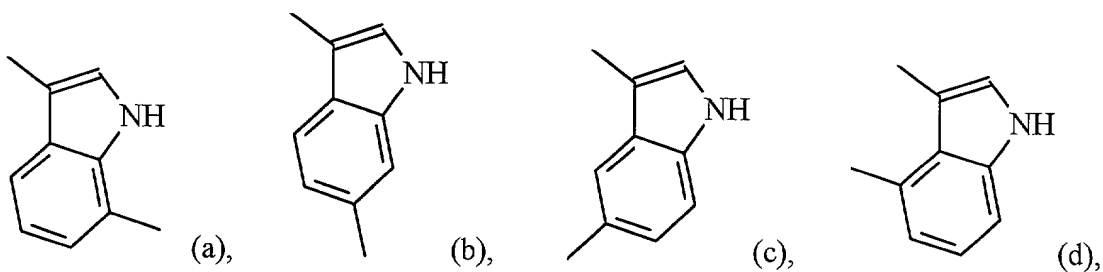
administering to the patient a tumor imaging effective amount of a compound of formula (I), or a pharmaceutically acceptable salt thereof:



wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture,

R₁ is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



R₂ is C₁-C₇ alkyl, and

RE is selected from the group consisting of ⁷⁵Br, ¹²⁴I and ¹⁸F; and imaging the tumor using PET or SPECT imaging.

39. The method of claim 38, wherein the tumor is selected from the group consisting of brain, breast, prostate, colon, lung, liver, pancreas, gastric, lymphoma, uterine, cervical, extremities, sarcoma and melanoma.